

Description

TWO PIECE CONSOLE AND SEAT ASSEMBLY

BACKGROUND OF INVENTION

[0001] The present invention relates generally to a automotive console assembly and more particularly to a two piece console and seat assembly with improved packaging and pre-installation profile.

[0002] Automotive console assemblies play an important role in automobile design and functionality. Console assemblies are commonly positioned between individual seats to provide a wide variety of convenience features such as storage, a mounting surface for controls, and environmental controls and ports. Another common feature incorporated into these console assemblies is the ability to function as an armrest for one or more passengers within the vehicle. This requires the consoles, commonly mounted to the vehicle floor, to be designed with sufficient vertical height above the vehicle floor to properly function as arm rests.

[0003] It is precisely this vertical profile of current console assemblies that contributes to difficulties in manufacturing and assembly. Floor mounted console assemblies commonly must be installed into the vehicle prior to the vehicle seat installation. The pre-installed floor mounted consoles create a physical barrier that can interfere with automated seat installation techniques. Installation of a row of seats requires maneuvering to avoid the console. This may require specialized installation equipment or procedures and may even be unattainable due to space constraints. Post seat console installation may be constrained by functional space constraints generated by the pre-installed seat assemblies.

[0004] Installation of the console assembly in combination with a seat or seat assembly would therefore allow for a more efficient and simple automated installation. In addition, a combination console and seat assembly would provide a financial benefit to suppliers of seat assemblies by allowing the marketing and sale of a combination console and seat assembly part supply. Common center console designs as discussed, however, are commonly subject to vertical profile dimensions that introduce difficulties for pre-installation combination with seat assemblies. Often

the pallet assemblies used to ship seat assemblies include a structural mount pole such that rear seats can be mounted above the front seats for shipping. This structural mount pole can interfere with standard center console profiles. In addition, tooling utilized for installation of the seat assemblies also can interfere with the vertical profile of a standard console. Therefore, the an improvement to the packaging and shipping profile of a console/seat assembly would allow for a seat assembly and console assembly to be supplied in a single installable component.

SUMMARY OF INVENTION

[0005] It is therefore an object of the present invention to provide an automotive seat and console assembly with improved assembly characteristics. It is a further object of the present invention to provide an automotive seat and console assembly with improved shipping profile.

[0006] In accordance with the objects of the present invention an automotive seat assembly is provided. The seat assembly includes a driver side seat comprised of a driver seat back portion, a driver seat base portion, and a driver inboard mount assembly. The seat assembly further includes a passenger side seat comprised of a passenger seat back

portion, a passenger seat base portion, and a passenger inboard mount assembly. A joining frame is mounted to the driver inboard mount assembly and the passenger inboard mount assembly to connect the driver side seat and the passenger side seat into a single installable seat component. A lower console base is mounted to the joining frame. The lower console base is comprised of a plurality of lower console base walls and an open lower console base top. The lower console base walls and the open lower console base top form a lower console base storage bin. An upper console base is comprised of a plurality of upper console base walls, an open upper console base top and an open upper console base bottom. The upper console base is rotatably attached to the lower console base such that the upper console base can be rotated between a pre-installation position and an installation position. The plurality of upper console base walls engage the plurality of lower console base walls to form an extended depth storage bin when the upper console base is in the installation position. A console lid is rotatably attached to the open upper console base top.

[0007] Other objects and features of the present invention will become apparent when viewed in light of the detailed de-

scription and preferred embodiment when taken in conjunction with the attached drawings and claims.

BRIEF DESCRIPTION OF DRAWINGS

- [0008] FIGURE 1 is an illustration of an automotive seat assembly in accordance with the present invention.
- [0009] FIGURE 2 is an illustration of the automotive seat assembly illustrated in Figure 1, the illustration illustrating a console assembly attached in the pre-installation position.
- [0010] FIGURE 3 is an illustration of the automotive seat assembly illustrated in Figure 2, the seat assembly illustrated mounted on a shipping pallet.
- [0011] FIGURE 4 is an illustration of the automotive seat assembly illustrated in Figure 2, the seat assembly illustrated approached by an installation tool.
- [0012] FIGURE 5 is an illustration of the automotive seat assembly illustrated in Figure 2, the seat assembly illustrated installed within a vehicle.
- [0013] FIGURE 6 is an illustration of the automotive seat assembly illustrated in Figure 2, the seat assembly illustrated installed within a vehicle, the console assembly illustrated in the assembled position.
- [0014] FIGURE 7 is an exploded view illustration of the console

assembly illustrated in Figure 2.

[0015] FIGURE 8 is a detail illustration of a flow through assembly for use with the console assembly illustrated in Figure 2.

DETAILED DESCRIPTION

[0016] Referring now to Figure 1, which is an illustration of an automotive seat assembly 10 in accordance with the present invention. It should be understood that the seat assembly 10 illustrated in Figure 1 is intended to be illustrative of a wide variety of seating designs. The seat assembly 10 includes a first (driver side) seat 12 and a second (passenger side) seat 14. The driver side seat 12 is comprised of a driver seat back portion 16 and a driver seat base portion 18. A driver inboard mount assembly 20 protrudes inboard from the driver side seat 12. Although a variety of driver inboard mount assemblies are contemplated, one embodiment contemplates the driver inboard mount assembly 20 being formed as an extension of the driver seat mounts 22. Similarly, the passenger side seat 14 is comprised of a passenger seat back portion 24, a passenger seat base portion 26, and a passenger inboard mount assembly 28.

[0017] A joining frame 30 is mounted to the driver inboard mount assembly 20 and the passenger inboard mount as-

sembly 28 in order to connect the driver side seat 12 and the passenger side seat 14 into a single installable seat component 32. This allows manufacturers of automobiles to install the single installable seat component 32 into a vehicle in a single automated step. This, in turn, improves manufacturing cost and efficiency. It should be understood that the joining frame 30 may be formed in a wide variety of configurations such as the frame illustrated in Figure 1 or the pan frame assembly 44 illustrated in Figure 7. It would additionally be highly desirable to have a console assembly that could be mounted between the driver side seat 12 and the passenger side seat 14 prior to installation such that it too could be sold and shipped with the single installable seat component 32. Traditionally formed center consoles, however, commonly have vertical profiles that may interfere with shipping and installation procedures.

[0018] The present invention provides a novel approach to this design conflict by including a console assembly 34 comprised of a lower console base 36 (see Figure 2). The lower console base 36 is formed from a plurality of lower console base walls 38 and an open lower console base top 40. The base walls 38 and open base top 40 serve to form

a lower console base storage bin 42. The lower console base 36 is mounted to the joining frame 30 to become an integral part of the automotive seat assembly 10. The lower console base 36 preferably has a lower console base height 46 such that the lower console base protrusion 48, distance protruding over the seat base portion 18 can be minimized or kept below interference levels. The lower console base 36 is preferably orientated roughly tangential with the seat base portion 18.

[0019] The console assembly 34 further includes an upper console base 50 rotatably attached to the lower console base 36. The rotatable connection may be accomplished in a variety of fashions, although the use of a console hinge assembly 52 is contemplated. The upper console base 50 is comprised of a plurality of upper console base walls 54, an open upper console base top 56, and an open upper console base bottom 58. The upper console base 50 is rotatable between a pre-installation position 60 (see Figures 2–5) and an installation position 62 (see Figure 6). When rotated into the installation position 62, the plurality of upper console base walls 54 engage the plurality of lower console base walls 38 to form an extended depth storage bin 64. The upper console base 50 is preferably orien–

tated roughly tangential with the seat back portion 16.

The upper console base 50 preferably has an upper console base height 66 such that the upper console base protrusion 68, distance protruding inwards from the seat back portion 16 can be minimized or kept below interference levels when in the pre-installation position 60.

[0020] The advantage of this arrangement can easily be seen in Figures 3 and 4. The automotive seat assembly 10 can be mounted on a pallet 70 having a structural mount assembly 72 passing over the seat assembly 10. By splitting the console base into a lower console base 38 and an upper console base 50 each tangential with the seat base 18 and back 16 respectively, a greater range of seat shipping configurations may be utilized without interference. Furthermore, as illustrated in Figure 4, installation tooling 74 used to lift the seat assembly 10 by grabbing the seats between the seat base 18 and back 16 can do so without generating interference from the console assembly 34. Yet, when the upper console base 50 is rotated into the installation position 62 an extended depth storage bin 64 is generated that would normally generate significant interference if present in the pre-installation position 60.

[0021] The plurality of upper console base walls 54 engage the

plurality of lower console base walls 38 to form the extended depth storage bin 64 when the upper console base 50 is moved into the installation position 62. This can be accomplished in a variety of fashions. In one embodiment, the plurality of upper console base walls 54 are comprised of a plurality of upper base outer walls 76 and a plurality of upper base inner walls 78 that are separated to form an engagement sleeve 80. The plurality of lower console base walls 38 slide into the engagement sleeve 80 as the upper console base 50 is moved into the installation position 62. It is contemplated that the upper console base 50 will lock into the installation position 62 once assembly is desired. Although this may be accomplished in a variety of fashions, one embodiment contemplates the use of locking tabs 82 formed on the upper console base walls 54 and locking slots 84 formed on the lower console base walls 38. The locking tabs 82 engage the locking slots 84 to secure the upper console base 50 to the lower console base 36.

[0022] The console assembly 34 can incorporate a wide variety of other features as well. A console lid 86 is preferably rotatably attached to the upper console base top 56 such that the extended depth storage bin 64 can be closed off or

accessed by passengers after installation in the vehicle 88. The console lid 86 can include a padded armrest portion 90 such that the console assembly 34 can be utilized as an armrest in addition to its storage characteristics. A tray assembly 92 may be removably placed within the extended depth storage bin 64 in order to vertically divide it into one or more vertical sections. Similarly, dividers 94 such as flip-down dividers 94 may be mounted within the lower console base 36 in order to provide horizontal sections. Finally an air duct assembly 96 and a rear face 98 may be mounted to the rear of the console assembly 34 in order to pass environmental controls and air to the rear of the seat assembly 10. The upper console base 50 preferably rotates about a pivot position 100 above the air duct assembly 96 so as not to interfere with the air duct assembly 96.

[0023] The front face 102 of the lower console base 36 may be solid or installing a finishing end 104 may form it. In embodiments where a flow-through style assembly is desired (extending the console to the dashboard 106, see Figure 8) a flow through assembly 108 may be used in place or in combination with the finishing end 104. The flow through assembly 108 may be assembled onto the front face 102

after installation in the vehicle. This allows the present invention to be utilized on a wide variety of vehicles and vehicle designs. The flow through assembly 108 may incorporate a wide variety of controls and features such as, but not limited to, cup holders 110.

[0024] While the invention has been described in connection with one or more embodiments, it is to be understood that the specific mechanisms and techniques which have been described are merely illustrative of the principles of the invention, numerous modifications may be made to the methods and apparatus described without departing from the spirit and scope of the invention as defined by the appended claims.